

What is claimed is:

1. A device for displaying a body section in a virtual three-dimensional space by a computer comprising:

*"mgt means ... body section" is cap section*  
1 management means for managing attribute information of parts and arranging information of a  
2 set displaying plane for making a body section defined based on a plane of one of a parts;

3 implementing means for generating a three-dimensional section of the body cut by the set  
4 displaying plane according to the management data of the management means, and for  
5 displaying the three dimension section with the set displaying plane on the display screen; and  
6 up-date means for up-dating the arranged information managed by the management means by  
7 corresponding to the transfer or rotation of the set displaying plane.

2. A device for displaying a body section in a virtual three-dimensional space by a computer comprising:

1 management means for managing attribute information of parts and one or plural kinds  
2 of attribute information of set displaying plane for making a body section with the relation  
3 between the parts and the set displaying information;

4 implementing means for generating a three-dimensional section of the body cut by the  
5 set displaying plane according to the management data of the management means, and for  
6 displaying the three-dimensional section with the set displaying plane on the display screen;

7 and up-date means for up-dating the arranged information managed by the management  
8 means by corresponding to the transfer or rotation of the set displaying plane.

3. A device for displaying a body section in a virtual three-dimensional space by a computer in claim 2, where the implementing means displays an operating plate for operating the set displaying plane corresponding.

4. A device for displaying a body section in a virtual three dimension space by a computer in claim 2, where the implementing means comprises a sign board corresponding to

the set displaying plane and containing character strings for distinguishing the set displaying plane and containing a relation between the set displaying plane, if there is the relation.

5. A device for displaying a body section in a virtual three-dimensional space by a computer in claim 2, where the implementing means displays the set displaying plane with the frame of the set displaying plane.

6. A device for displaying a body section in a virtual three-dimensional space by a computer in claim 2, where the implementing means displays the set displaying plane with a transparent color, when the three-dimensions section is not displayed.

7. A device for displaying a body section in a virtual three-dimensional space by a computer in claim 6, where the implementing means displays the set displaying planes with the same transparent color, when the relation information is defined between the set planes.

8. A device for displaying a body section in a virtual three-dimension space by a computer in claim 2, where, the up-date means updates the child information with the parent information according to the change of the parent information, when the relation between the parent and child is defined;  
the implementing means transfers or rotates the child plane corresponding to the transfer or rotate of the parent plane.

9. A device for displaying a body section in a virtual three-dimensional space by a computer in claim 2 comprising:  
edit means for editing the relation information displayed on the screen by user interfacing with the screen.

10. A device for displaying a body section in a virtual three-dimensional space by a computer in claim 2 comprising:

3 generating means for generating a new set displaying plane according to a request for  
4 generating a set displaying plane issued with a designation of a plane of one of the parts by  
5 making the relation with the parts, or for generating a new set displaying plane according to a  
6 request for generating a set displaying plane issued with a designation of a registered plane by  
7 making the relation with the registered plane.

1 11. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 10 comprising:

3 second generating means for generating a new setting displaying plane containing a  
4 specific point by linking with the set displaying plane or the set displaying plane generated just  
5 before from a specific point contained in the designated set displaying plane and parts.

1 12. A device for displaying a body section in a virtual three-dimension space by a  
2 computer in claim 11 comprising:

3 third generating means generating a new set displaying by tracing path information set  
4 on a designated set displaying plane from the path information, while making a relation  
5 information with the set displaying plane.

1 13. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 12 comprising:

3 fourth generating means for generating a new set displaying plane by moving  
4 continuously the designated set displaying plane, by linking with the set displaying plane or the  
5 set displaying plane generated just before from a specific point contained in the designated set  
6 displaying plane and parts.

1 14. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 2 comprising:

3 existing range setting means for setting a allowable range of existence of the set  
4 displaying plane for a set displaying plane.

1           15.    A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 2 comprising:

3           section direction setting means for setting the section direction of a body to the set  
4 display plane.

1           16.    A device for displaying a body section in a virtual three-dimensional space by a  
2 computer claim 15, where the setting direction setting means sets the cutting direction of the  
3 body depending to the existing position of the set displaying plane.

1           17.    A device for displaying a body section in a virtual three-dimension space by a  
2 computer in claim 2 comprising:

3           arranging means for arranging additional parts or arranging a region on the set  
4 displaying plane.

1           18.    A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 2 comprising:

3           check means for checking an interference between one or plural of parts, which move  
4 with the set displaying plane, and another parts.

1           19.    A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 2 further comprising:

3           deciding means for deciding whether the two-dimensional section and the three-  
4 dimensional section are controlled with linkage or no-linkage,

5           when the deciding means decides the linkage control, the implementing means generates  
6 the two-dimensional section of the body cut by the set displaying plane for generating the  
7 three-dimensional section, when the deciding means decides no-linkage control, the  
8 implementing means generates the two-dimensional section cut by a set display plane selected  
9 from the set displaying planes, and displays the two-dimensional section on the same screen

10 displaying the three-dimensional section.

1 20. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 19, where the implementing means displays the two-dimensions, showing  
3 the corresponding a part of the three-dimensional section.

1 21. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 19, where the implementing means displays the two-dimensional section and  
3 the three-dimensional section, showing a position of a designated view point.

1 22. A method for displaying a body section for displaying a body section in a virtual  
2 three-dimensional space by a computer comprising:  
3 managing management data of one or plural set displaying planes for cutting the body  
4 to make the section and of the attribute information of parts and of set displaying planes wit the  
5 relation information with the parts and set displaying plane, which are made by the same data  
6 structure;  
7 registering the management data;  
8 displaying the section and set displaying plane with the relation information; and  
9 up dating the section made by the set displaying plane corresponding to the designation of  
10 transfer or rotation of the set displaying plane with considering the relation information.

1 23. A medium for storing the program for displaying a body section for displaying a  
2 body section in a virtual three-dimensional space, where the program comprising:  
3 managing management data of one or plural set displaying planes for cutting the body  
4 to make the section and of the attribute information of parts and of set displaying planes wit the  
5 relation information with the parts and set displaying plane, which are made by the same data  
6 structure;  
7 registering the management data;  
8 displaying the section and set displaying plane with the relation information; and

up dating the section made by the set displaying plane corresponding to the designation of transfer or rotation of the set displaying plane with considering the relation.

24. A device for displaying a body section in a virtual three-dimensional space by a computer comprising:

a management unit managing attribute information of parts and arranging information of a set displaying plane for making a body section defined based on a plane of one of a parts; an implementing unit generating a three-dimensional section of the body cut by the set displaying plane according to the management data of the management unit, and for displaying the three dimension section with the set displaying plane on the display screen; and

an up-date unit up-dating the arranged information managed by the management unit by corresponding to the transfer or rotation of the set displaying plane.

25. A device for displaying a body section in a virtual three -dimensional space by a computer comprising:

a management unit managing attribute information of parts and one or plural kinds of attribute information of set displaying plane for making a body section with the relation between the parts and the set displaying information;

an implementing unit generating a three-dimensional section of the body cut by the set displaying plane according to the management data of the management unit, and for displaying the three-dimensional section with the set displaying plane on the display screen; and

an up-date unit for up-dating the arranged information managed by the management unit by corresponding to the transfer or rotation of the set displaying plane.

26. A device for displaying a body section in a virtual three-dimensional space by a computer in claim 25, where the implementing unit displays an operating plate for operating the set displaying plane corresponding.

27. A device for displaying a body section in a virtual three-dimension space by a

2 computer in claim 25, where the implementing unit comprises a sign board corresponding to  
3 the set displaying plane and containing character strings for distinguishing the set displaying  
4 plane and containing a relation between the set displaying pale, if there is the relation.

1 28. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 25, where the implementing unit displays the set displaying plane with the  
3 frame of the set displaying plane.

1 29. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 25, where the implementing unit displays the set displaying plane with a  
3 transparent color, when the three-dimensions section is not displayed.

1 30. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 29, where the implementing unit displays the set displaying planes with the  
3 same transparent color, when the relation information is defined between the set planes.

1 31. A device for displaying a body section in a virtual three-dimension space by a  
2 computer in claim 25, where, the up-date unit updates the child information with the parent  
3 information according to the change of the parent information, when the relation between the  
4 parent and child is defined;

5 the implementing unit transfers or rotates the child plane corresponding to the transfer  
6 or rotate of the parent plane.

1 32. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 25 comprising:

3 an edit unit editing the relation information displayed on the screen by user interfacing  
4 with the screen.

1 33. A device for displaying a body section in a virtual three-dimensional space by a

2 computer in claim 25 comprising:

3 a generating unit generating a new set displaying plane according to a request for  
4 generating a set displaying plane issued with a designation of a plane of one of the parts by  
5 making the relation with the parts, or for generating a new set displaying plane according to a  
6 request for generating a set displaying plane issued with a designation of a registered plane by  
7 making the relation with the registered plane.

1 34. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 33 comprising:

3 a second generating unit generating a new setting displaying plane containing a specific  
4 point by linking with the set displaying plane or the set displaying plane generated just before  
5 from a specific point contained in the designated set displaying plane and parts.

1 35. A device for displaying a body section in a virtual three-dimension space by a  
2 computer in claim 34 comprising:

3 a third generating unit generating a new set displaying by tracing path information set  
4 on a designated set displaying plane from the path information, while making a relation  
5 information with the set displaying plane.

1 36. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 34 comprising:

3 a fourth generating unit for generating a new set displaying plane by moving  
4 continuously the designated set displaying plane, by linking with the set displaying plane or the  
5 set displaying plane generated just before from a specific point contained in the designated set  
6 displaying plane and parts.

1 37. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 25 comprising:

3 an existing range setting unit setting an allowable range of existence of the set



4 displaying plane for a set displaying plane.

1 38. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 25 comprising:

3 a section direction setting unit for setting the section direction of a body to the set  
4 display plane.

1 39. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 38, where the setting direction setting unit sets the cutting direction of the  
3 body depending to the existing position of the set displaying plane.

1 40. A device for displaying a body section in a virtual three-dimension space by a  
2 computer in claim 35 comprising:

3 an arranging unit arranging additional parts or arranging a region on the set displaying  
4 plane.

1 41. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 25 comprising:

3 a check unit checking an interference between one or plural of parts, which move with  
4 the set displaying plane, and another parts.

1 42. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 25 further comprising:

3 a deciding unit deciding whether the two-dimensional section and the three-dimensional  
4 section are controlled with linkage or no-linkage,

5 when the deciding unit decides the linkage control, the implementing unit generates the  
6 two-dimensional section of the body cut by the set displaying plane for generating the three-  
7 dimensional section, when the deciding unit decides no-linkage control, the implementing unit  
8 generates the two-dimensional section cut by a set display plane selected from the set.

9 displaying planes, and displays the two-dimensional section on the same screen displaying the  
10 three-dimensional section.

1 43. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 42, where the implementing unit displays the two-dimensions, showing the  
3 corresponding a part of the three-dimensional section.

1 44. A device for displaying a body section in a virtual three-dimensional space by a  
2 computer in claim 42, where the implementing unit displays the two-dimensional section and  
3 the three-dimensional section, showing a position of a designated view point.

1 45. A device displaying a body section by a computer comprising:  
2 a management unit managing set displaying planes for cutting the body into sections;  
3 and  
4 an implementing unit generating a three-dimensional section of the body cut by the set  
5 displaying planes, and displaying the section with the set displaying plane on a display screen.

1 46. A device for displaying a body section by a computer in claim 45 further  
2 comprising:  
3 an up-date unit up-dating a position of the set displaying plane making the section  
4 corresponding to the transfer-rotation of the set displaying plane.

1 47. A device for displaying a body section by a computer in claim 45 comprising:  
2 an up-date unit up-dating a position and direction of the set displaying plane making the  
3 section corresponding to the transfer-rotation of the set displaying plane.

1 48. A method for displaying a body section by a computer comprising:  
2 managing set displaying planes for defining planes cutting a body based on a plane of  
3 the body; and

4 generating a three-dimensional section of the body cut by the set displaying plane, and  
5 displaying the section with the set displaying plane on the display screen.

1 49. A method for displaying a body section by a computer in claim 48 comprising:  
2 up-dating positions of the section made by the set displaying plane corresponding to the  
3 transfer or rotation designation for the set displaying plane.

1 50. A method for displaying a body section of the section by a computer in claim 48  
2 comprising:  
3 up-dating positions and directions for making the section of the body cut by the set  
4 displaying plane corresponding to the transfer and rotation direction for the set displaying  
5 plane.

1 51. A medium for storing a program for displaying a body section by a computer  
2 comprising:  
3 managing set displaying planes for making the body section; and  
4 generating a three-dimensional section of the body cut by the set displaying plane, and  
5 displaying the section with the set displaying plane on the display screen.

1 52. A medium for storing the program for displaying a body section by computer in  
2 claim 51 comprising:  
3 up-dating positions of the section made by the set displaying plane corresponding to the  
4 designated transfer or rotation.

1 53. A medium for storing the program for displaying a body section by a computer  
2 in claim 51 comprising:  
3 up-dating positions and directions of the section made by the set displaying plane  
4 corresponding to the designated transfer or rotation.